

This Page Is Inserted by IFW Operations  
and is not a part of the Official Record

## **BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning documents *will not* correct images,  
please do not report the images to the  
Image Problem Mailbox.**

# (12) UK Patent Application (19) GB (11) 2 270 882 (13) A

(43) Date of A Publication 30.03.1994

(21) Application No 9220421.3

(22) Date of Filing 28.09.1992

(71) Applicant(s)  
Autoliv Development AB

(Incorporated in Sweden)

Patent Department, S-447 83 Vargarda, Sweden

(72) Inventor(s)  
Dan Persson  
Jonas Malmenstam

(74) Agent and/or Address for Service  
Forrester Ketley & Co  
Forrester House, 52 Bounds Green Road, LONDON,  
N11 2EY, United Kingdom

(51) INT CL<sup>5</sup>  
B60R 21/20

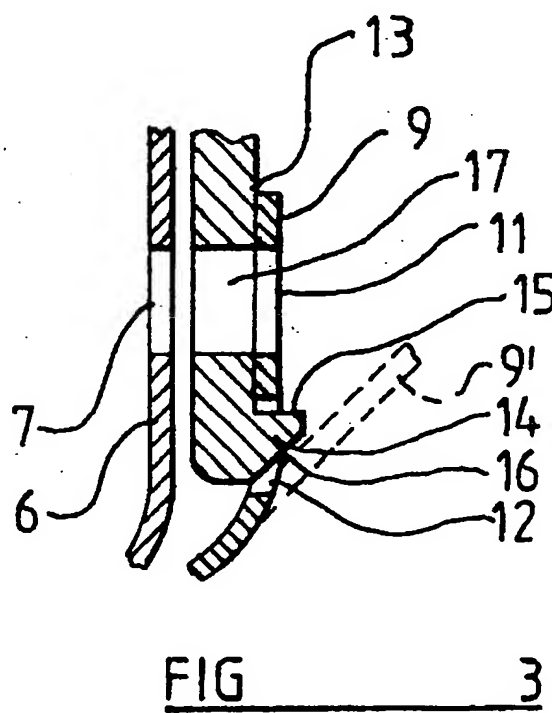
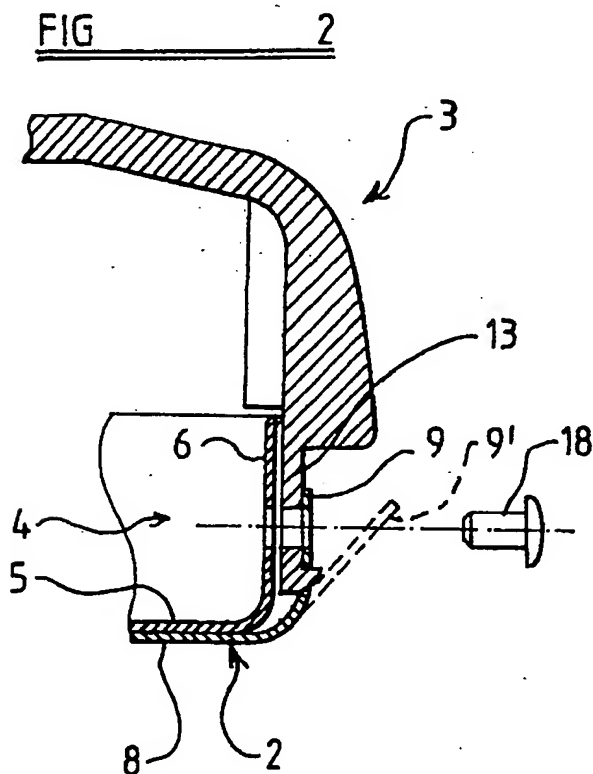
(52) UK CL (Edition M )  
B7B BSB  
E2A AARQ A100 A106 A164 A171 A190

(56) Documents Cited  
GB 2192841 A GB 1344025 A GB 1033210 A  
US 4941678 A

(58) Field of Search  
UK CL (Edition K ) B7B BSB , E2A ACAM  
INT CL<sup>5</sup> B60R  
Online database: WPI

## (54) Cover for a vehicle air bag arrangement

(57) A housing 2 and a cover 3 are interconnected by a snap joint comprising an aperture 12 in a resilient upwardly extending lug 9 and a projection 14 on a lip 13 of the cover 3. Rivets 18 additionally secure the cover and housing together.



GB 2 270 882 A

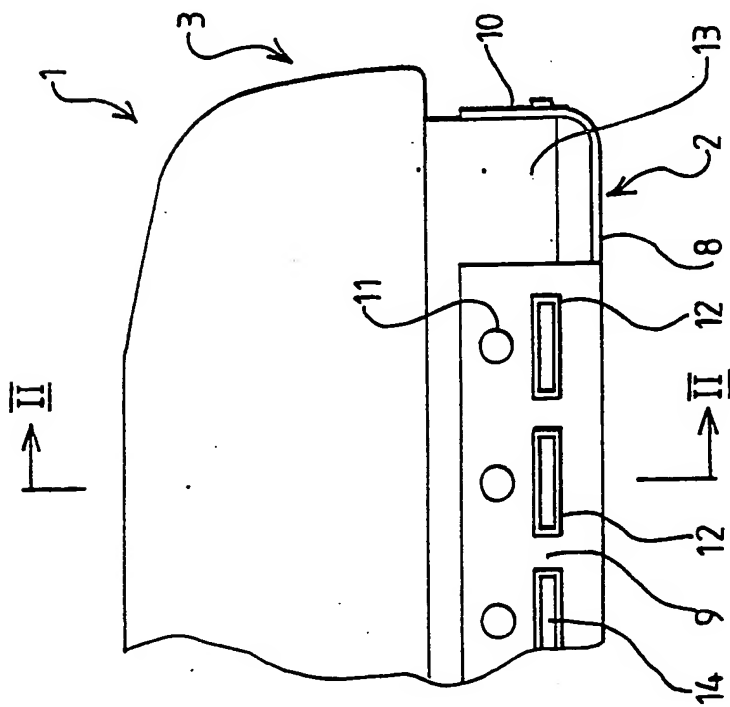


FIG 1

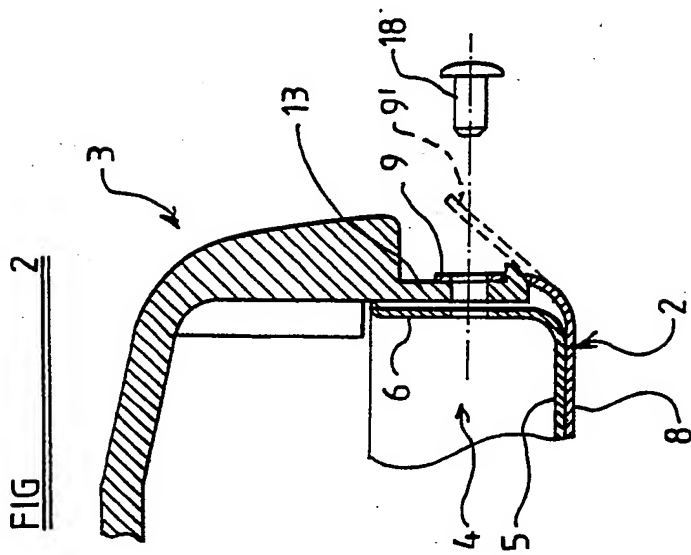


FIG 2

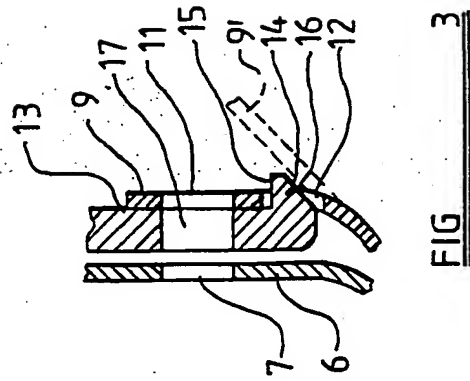


FIG 3

## DESCRIPTION OF INVENTION

## "IMPROVEMENTS IN OR RELATING TO AN AIR-BAG ARRANGEMENT"

THE PRESENT INVENTION relates to an air-bag arrangement and more particularly relates to a housing, having a cover, adapted to contain an air-bag.

It is becoming conventional to provide air-bags in motor vehicles, such as motor cars, such air-bags being adapted to be inflated in the event that an accident arises in order to provide a degree of protection for the driver and passenger in the motor vehicle.

An air-bag of this type may be mounted in the hub of the steering wheel or in the dashboard of the vehicle. In either case the air-bag is contained within a housing which incorporates a cover, typically formed of a plastic material. The cover may have lines of weakness so that, when the air-bag is inflated, the cover will break or give way to permit the air-bag to become fully inflated.

It has been conventional for the cover, typically made of a plastic material, to be fixed to the rest of the housing containing the air-bag using rivets. In assembling an air-bag unit of this type the cover must first be located in its correct position relative to the housing, and then has to be maintained in that position while rivets are put in place. This is an inconvenient method for assembling a air-bag unit.

The present invention seeks to provide an improved air-bag unit.

According to this invention there is provided an air-bag unit comprising a housing or receptacle and a cover, both the housing and the cover being relatively rigid, the housing and the cover being inter-connected by a snap-joint, the snap-joint comprising two elements, the elements being carried respectively by the housing and the cover, at least one of the elements being resilient, the first element carrying at least one abutment, and the other element carrying means to engage said abutment.

Preferably the or each abutment comprises a surface present on a projection formed on the said first element.

Conveniently the means to engage the abutment comprise an aperture formed in the said other element.

Advantageously the resilient element is fixed to or formed integrally with the housing.

Conveniently the resilient element is spaced from an inner receptacle forming part of the housing, the element formed integrally with the cover being located between the inner receptacle and the resilient element.

Preferably the element carrying the means to engage the abutment is the resilient element.

Conveniently the element carried by the cover carries the abutment and is provided with wedging means which move the resilient element from an initial position when the cover is being fixed to the housing.

Preferably the said wedging means are formed o the projection present on the said first element.

Advantageously the housing and the resilient element are made of metal.

Conveniently the cover is formed of a plastics material.

Advantageously the cover and the housing are additionally connected to each other by means of rivets or screws or the like.

In order that the invention may be more readily understood, and so that further features thereof may be appreciated, the invention will now be described, by way of example, with reference to the accompanying drawings in which

FIGURE 1 is a partial side view of an air-bag housing,

FIGURE 2 is a sectional view taken on the line II-II of Figure 1, and

FIGURE 3 is an enlarged view of part of Figure 2.

Referring to the drawings an air-bag unit 1 comprises two principal components, namely a receptacle or housing 2 and a cover 3. The receptacle or housing 2 may be made principally of metal and the cover 3 may be made principally of plastic material. The receptacle or housing 2 and the cover 3 are connected together.

The receptacle or housing 2 comprises an inner container 4 having a receptacle 5 and an upstanding side wall 6 which is provided with a plurality of circular apertures 7 therein. An outer part of the housing comprises an outer receptacle 8 underlying the base 5 of the inner receptacle 4. The outer receptacle 8 is provided with upwardly extending lugs 9,10 provided at the sides of the receptacle. The lugs 9,10 are resilient and can be deflected to the position shown in phantom 9'. The lugs 9,10 are each provided with sets of two apertures. Each set of apertures comprises a first circular aperture 11 being positioned to be substantially aligned with an aperture 7 and being of the same size, and a further aperture 12 being positioned closer to the receptacle 8. Each aperture 12 is of rectangular configuration, as can be seen most clearly from Figure 1, and is larger than the associated circular aperture.

The lugs 9,10 each form part of a snap-joint between the receptacle or housing 2 and the cover 3. The other component of the joint comprises a peripheral downwardly extending lip 13, provided on the housing 3, the lip 13 being provided at its lower edge, with a set of outwardly directed projections 14 each having a substantially horizontal upper surface 15 which comprises an abutment, and an inclined lower surface 16 which comprises a wedge. Each projection 14 is substantially rectangular and of the same size as an aperture 12. The lip 13 is also provided with a set of circular apertures 17, of the same diameter as the apertures 7 and 11.

A plurality of rivets 18 are provided.

In assembling the air-bag unit illustrated in Figures 1 to 3 initially the cover 3 is lowered into position on the housing or receptacle 2. The depending lip 13 is inserted between the upstanding lugs 9,10 of the outer part of the container or housing and the wall 6 of the inner receptacle 4. The top part of each lug 9,10 will initially be engaged by the inclined lower surfaces 16 of the projections 14. These inclined lower surfaces will act with a camming or wedging action causing the lug 9 or 10 to be bent resiliently outwardly towards the position 9'. The projections 14 will then move past the apertures 11, the projections 14 having a greater horizontal width than the diameter of the apertures 11 as can be seen from Figure 1.

When the cover has been moved to its final position, the projections 14 will be aligned with the apertures 12 in the lug 9 or 10 and the lug will return to its initial substantially vertical position with the projections 14 extending through the apertures 12. The horizontal abutment surfaces 15 provided on the projections 14 will then engage the upper parts of the apertures 12 preventing the cover 3 from moving upwardly.

The apertures 17 formed in the depending lip 13 provided on the cover 3 are then co-aligned with the apertures 7 and 11 and rivets 18 may readily be inserted in position extending through the co-aligned apertures. Of course, screws or bolts could be used instead of the rivets.

Whilst the snap-joint has been described with reference to a lug with a plurality of apertures, and a lip with a plurality of projections, a lug with a single aperture, to co-operate with a lip with a single projection could be provided.



CLAIMS:

1. An air-bag unit comprising a housing or receptacle and a cover, both the housing and the cover being relatively rigid, the housing and the cover being interconnected by a snap-joint, the snap-joint comprising two elements, the elements being carried respectively by the housing and the cover, at least one of the elements being resilient, the first element carrying at least one abutment, and the other element carrying means to engage said abutment.
2. An air-bag unit according to Claim 1 wherein the or each abutment comprises a surface present on a projection formed on the said first element.
3. An air-bag unit according to Claim 1 or 2 wherein the means to engage the abutment comprise an aperture formed in the said other element.
4. An air-bag unit according to any one of the preceding Claims wherein the resilient element is fixed to or formed integrally with the housing.
5. An air-bag unit according to Claim 4 wherein the resilient element is spaced from an inner receptacle forming part of the housing, the element formed integrally with the cover being located between the inner receptacle and the resilient element.
6. An air-bag unit according to any one of the preceding Claims wherein the element carrying the means to engage the abutment is the resilient element.

7. An air-bag unit according to Claim 6 wherein the element carried by the cover carries the abutment and is provided with wedging means which move the resilient element from an initial position when the cover is being fixed to the housing.

8. An air-bag unit according to Claim 7 as dependent on Claim 2 wherein the said wedging means are formed on the projection present on the said first element.

9. An air-bag unit according to any one of the preceding Claims wherein the housing and the resilient element are made of metal.

10. An air-bag unit according to any one of the preceding Claims wherein the cover is formed of a plastics material.

11. An air-bag unit according to any one of the preceding Claims wherein the cover and the housing are additionally connected to each other by means of rivets or screws or the like.

12. An air-bag unit substantially as herein described with reference to and as shown in the accompanying drawings.

13. Any novel feature or combination of features disclosed herein.

**Amendments to the claims have been filed as follows**

1. An air-bag unit comprising a housing or receptacle and a cover, both the housing and the cover being relatively rigid, the housing and the cover being interconnected by a snap-joint, the snap-joint comprising two elements, the elements being carried respectively by the housing and the cover, at least one of the elements being resilient, the first element carrying at least one abutment, and the other element carrying means to engage said abutment, the resilient element being fixed to or formed integrally with the housing.
2. An air-bag unit according to Claim 1 wherein the resilient element is spaced from an inner receptacle forming part of the housing, the element formed integrally with the cover being located between the inner receptacle and the resilient element.
3. An air-bag unit according to Claim 1 or Claim 2 wherein the or each abutment comprises a surface present on a projection formed on the said first element.
4. An air-bag unit according to Claim 1, 2 or 3 wherein the means to engage the abutment comprise an aperture formed in the said other element.
5. An air-bag unit according to any one of the preceding Claims wherein the element carrying the means to engage the abutment is the resilient element.
6. An air-bag unit according to Claim 5 wherein the element carried by the cover carries the abutment and is

provided with wedging means which move the resilient element from an initial position when the cover is being fixed to the housing.

7. An air-bag unit according to Claim 6 as dependent on Claim 2 wherein the said wedging means are formed on the projection present on the said first element.

8. An air-bag unit according to any one of the preceding Claims wherein the housing and the resilient element are made of metal.

9. An air-bag unit according to any one of the preceding Claims wherein the cover is formed of a plastics material.

10. An air-bag unit according to any one of the preceding Claims wherein the cover and the housing are additionally connected to each other by means of rivets or screws or the like.

11. An air-bag unit substantially as herein described with reference to and as shown in the accompanying drawings.

12. Any novel feature or combination of features disclosed herein.

**Examiner's report to the Comptroller under  
Section 17 (The Search Report)**

GB 9220421.3

**Relevant Technical fields**

(i) UK CI (Edition K ) B7B (BSB) ; E2A (ACAM)

(ii) Int CI (Edition 5 ) B60R

**Databases (see over)**

(i) UK Patent Office

(ii) ONLINE DATABASE: WPI

**Search Examiner**

PAT EVERETT

**Date of Search**

27 OCTOBER 1992

Documents considered relevant following a search in respect of claims

ALL

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
X,Y	GB 2192841 A (TRW) Figure 1 and page 3 lines 3-14	X: 1, 2 Y: 3
Y	GB 1344025 A (SWF) Note catch 18	Y: 3
Y	GB 1033210 A (FT PRODUCTS) Note fastener 10	Y: 3
X,Y	US 4941678 A (LARITZEN) Figure 1 and column 3, lines 2-9	X: 1, 2 Y: 3

### Categories of documents

**X:** Document indicating lack of novelty or of inventive step.

**Y:** Document indicating lack of inventive step if combined with one or more other documents of the same category.

**A:** Document indicating technological background and/or state of the art.

**P:** Document published on or after the declared priority date but before the filing date of the present application.

**E:** Patent document published on or after, but with priority date earlier than, the filing date of the present application.

**&:** Member of the same patent family, corresponding document.

**Databases:** The UK Patent Office database comprises classified collections of GB, EP, WO and US patent specifications as outlined periodically in the Official Journal (Patents). The on-line databases considered for search are also listed periodically in the Official Journal (Patents).